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International Preliminary Examining
Authority
European Patent Office
P.B 5818 Patentlaan 2
NL-2280 HV Rijswijk
Netherlands

By Fax: 31 70 340-3016

Dear Sirs,

PCT Application No. PCT/GB2004/005137
Applicant: BP Exploration Operating Company Limited
Our Ref. BPX10106
Response to the Written Opinion of the International Searching Authority

We refer to the Written Opinion of the International Searching Authority dated *2nd March 2005*, issued in respect of the above-mentioned patent application. A demand for international preliminary examination of the application was filed 15 June 2005.

Enclosed are replacement pages for pages 17 and 18 of the application. These replacement pages amend the claims of the application. Claim 1 is amended to combine original claims 1 and 2. The other claims are amended to make consequential amendments to the claim numbering.

For the convenience of the Examiner, a copy of pages 17 and 18 showing the amendments in red is also enclosed.

The amendment to claim 1 is supported by the disclosure at page 3, line 23 to page 4, line 21 and page 11 line 22 to page 12, line 11.

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According to the Written Opinion, claims 1 to 8 and 11 are considered to be novel.

However, the Examiner believes that the subject matter of claim 9 is anticipated by US 2002/079106 (D1) and that the subject matter of claims 1, 2-8, 10 and 11 is not inventive over D1.

Claim 1 as amended is novel over D1 in that the method of applying the hard particulate material is plasma coating and is applied to form protuberances on the surface. There is no teaching or suggestion in D1 that the coating should be applied to form the protuberances as described and illustrated in the present application. Paragraph 66 of D1 discloses coating the whole or part of the exterior of the first pipe prior to its location within the second pipe. The hard particulate material interpenetrates the meeting surfaces of the two sheets of steel which are pressed together. There is no teaching of forming the protuberances, for example by the use of a mask, as claimed in the amended claims. We therefore believe that the amended claims are patentable over D1.

Yours faithfully,



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Encs.

Claims:

1. A method for connecting a first tubular element and a second tubular element comprising:
 - locating a portion of the first tubular element within a portion of the second tubular element,
 - expanding the portion of the first tubular element and/or compressing the portion of the second tubular element to form a connection resulting from the interference between the external surface of the portion of the first tubular element and the internal surface of the portion of the second tubular element,
 - in which, prior to assembly, one or both of the external surface of the portion of the first tubular element and the internal surface of the portion of the second tubular element is/are at least partially coated by plasma spraying with hard angular material, characterised in that the hard angular material is applied to
2. ~~A method as claimed in claim 1 in which the external surface of the portion of the first tubular element and/or the internal surface of the portion of the second tubular element are at least partially coated by plasma spraying to form protuberances on the surface.~~
3. A method as claimed in claim 2 in which a mask is used to form the protuberances.
4. A method as claimed in claim 3 in which a foraminous mask is placed over at least part of the external surface of the portion of the first tubular element and/or part of the internal surface of the portion of the second tubular element before the surface is sprayed such that the plasma spray passes through holes in the mask, forming protuberances on the surface of the surface when the mask is removed.

54. A method as claimed in any one of claims 1 to 43 in which part of the portion of the first tubular element and a corresponding part of the portion of the second tubular element are not coated by plasma spraying such that when the connection is expanded these bare metal parts form a metal-to-metal seal.
- 5 | 65. A method as claimed in any one of claims 1 to 45 in which two pipes are connected by locating one end of each of the pipes over a pin of a male/male connector and within the box of a female/female connector and expanding the internal diameter of the male/male connector.
- 10 | 76. A method as claimed in any one of claims 1 to 65 in which at least one element designed to be embedded in the surfaces as the connection is expanded is located between the external surface of the portion of the first tubular element and/or part of the internal surface of the portion of the second tubular element
- 15 | 87. A method for connecting piping used in oil and gas boreholes comprises connecting pipes together as claimed in any one of claims 1 to 76, lowering the pipe string into the borehole and subsequently radially expanding the pipe string downhole.
- 15 | 98. An expandable tubular element suitable for forming connections by a method as claimed in any one of claims 1 to 87 having protuberances on a part of its surface adjacent at least one end thereof which have been formed by plasma spraying a hard angular material.
- 20 | 109. An expandable tubular element as claimed in claim 98 which is a male/male coupling comprising two pin connectors the plasma sprayed protuberances being on the external surfaces of the pin connectors.
- 25 | 1110. An expandable tubular element as claimed in claim 8 which is a female/female coupling comprising two box connectors the plasma sprayed protuberances being on the internal surfaces of the box connectors.